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October 13, 1951

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

TECHNOLOGY DEPT.

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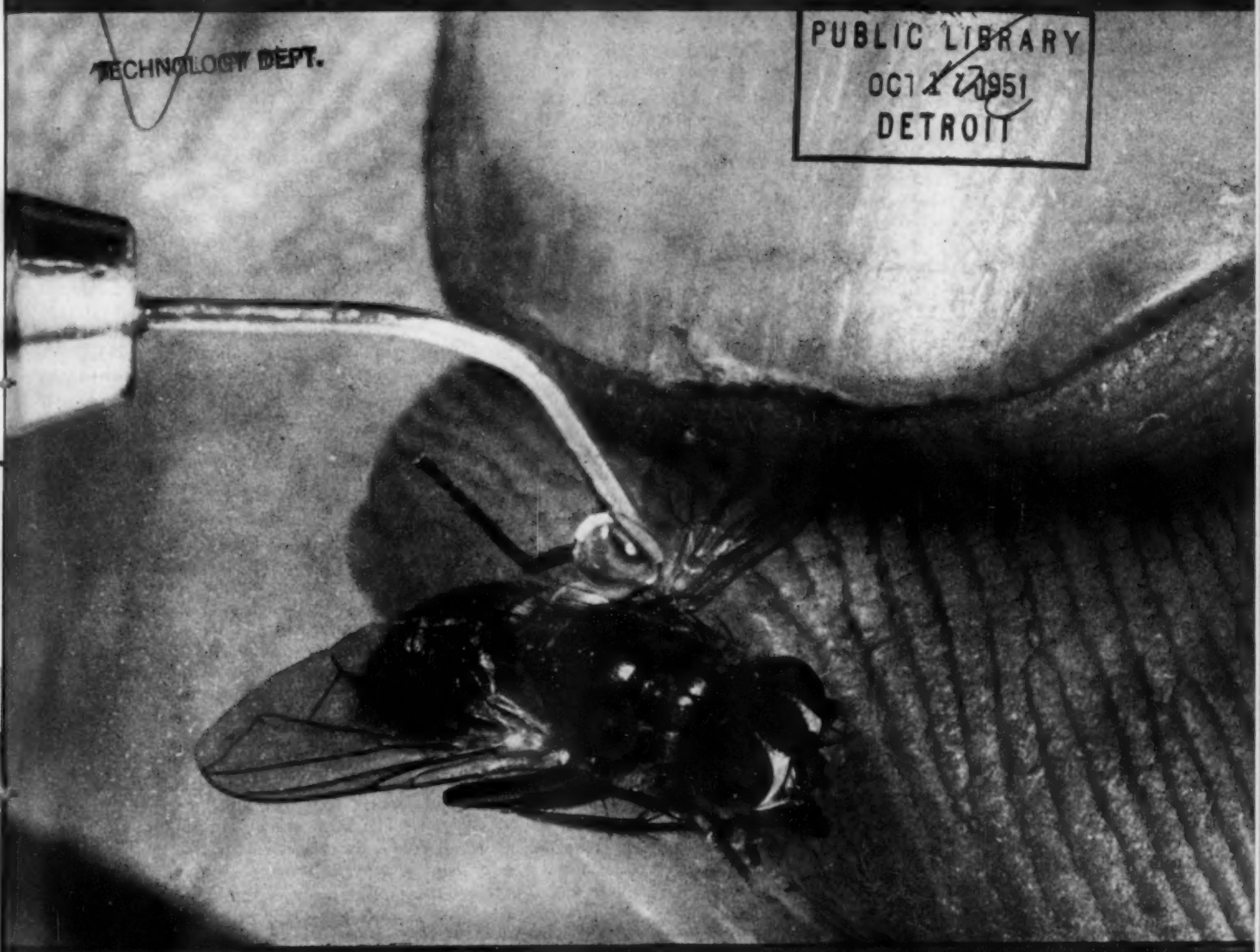

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ASTRONOMY

# Gigantic Stars Discovered

**These stars are probably giant variables of irregular fluctuations, most like the giant red star Betelgeuse of our own stellar system.**

➤ GIGANTIC STARS that would engulf a large part of our solar system exist in other parts of the universe.

Dr. Harlow Shapley, director of Harvard College Observatory, suggested the existence of this new kind of star to the Mexican Scientific Congress held in Mexico City as a part of the 400th anniversary of the National University of Mexico.

This strange kind of heavenly body, as gigantic as the orbit of Jupiter, is believed to exist because of the photometric analysis of light given off. Dr. Shapley suggested that these stars have a very hot and brilliant center with an outer shell of less dense matter. The shell is some 500 million miles from the center. Between the shell and the center, the matter in the star is so sparse that it is less dense than the best vacuum that can be created here on earth.

Less than a thousandth of the star's substance is contained in the outer shell which is kept at such remote distance from the center through radiation pressure and gravitational attraction.

Most of those stars discovered are so far away that it takes light 80,000 years to reach from them to the earth. They are in the large Magellanic Cloud which is a galaxy of billions of stars much like our own Milky Way galaxy in which our sun is a rather ordinary star. Some such stars are also in the small Magellanic Cloud.

The newly discovered giant stars must be from 10,000 to 50,000 times as bright intrinsically as our sun. So large are these stars that some may not wish to call them star but consider them some other form of sidereal object. Their spectra shine like those of more normal stars, however.

These stars are probably giant variables of irregular fluctuations, most like the giant red star Betelgeuse of our own stellar system.

Photographs of these supergiant stars are obtained when the keen and modern telescopes of Harvard Observatory's South African station near Bloemfontein, Orange Free State, take pictures of the immense stellar aggregations that exist at great distances out in space.

Dr. Shapley gave his preliminary report on the superstars in Mexico because the Mexican Astrophysical Observatory at Tonanzintla, in the state of Puebla, is engaged in a cooperative program with a very modern telescope. His full report will be made to the National Academy of Sciences meeting at Yale in November.

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NATURAL RESOURCES

# Benzene from Shale Oil

➤ BENZENE, IMPORTANT chemical in the manufacture of synthetic rubber, can be obtained in large quantities from the same Colorado oil shale that is now producing heating oil and gasoline. The same shale will also yield other important chemicals such as solvents, waxes, asphalts and tars.

Benzene is one of the strategic materials now in short supply. Last year the United States used approximately 190,000,000 gallons. While the larger part was used in making rubber, much was employed in making synthetic phenol for plastics, aniline for dyes, in nylon, DDT, aviation gasoline, detergents, solvents and many other products. The demand for benzene is far greater than the present supply.

The potential value of oil shale as a source of important chemicals to meet short supplies was emphasized by J. H. East, Jr., of the U. S. Bureau of Mines at Laramie, Wyo. This local laboratory of the Bureau is concerned with oil shale and its products.

Until recently, benzene was available only as a by-product of coke-oven operations. Now new plants are under construction to produce it from petroleum. The demand is so much greater than the supply that synthetic toluene plants built during World War II are being reactivated and converted to benzene production.

An oil-shale plant operated to recover benzene would produce also a large amount of ethylene, a chemical with many industrial applications, Mr. East stated. These include making ethyl alcohol, ethylene glycol for anti-freezes, synthetic rubber, plastics, aviation fuel, antiknock fluid, explosives, refrigerants and many other products.

At the Bureau's Oil-Shale Laboratory at Laramie, a unique process is under development for retorting oil shale to produce high yields of critical chemicals. It is a high-speed, high-temperature process to convert fine shale almost instantly under intense heat ranging from 1,200 to 1,800 degrees Fahrenheit. It offers particularly an attractive means of using the up to 10% of the crushed shale that is too fine for normal retorting operations and is now discarded as waste.

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BOTANY

## College Ivy Grows Fast—One Inch Every Ten Hours

➤ IT TAKES practically no time at all for an ivy-clad college to get that way. Ivy grows at the rate of about an inch every ten hours.

Turning aside from the more weighty and complex research problems of Harvard University's department of biology, Sumner Zacks leaned out the window and measured the growth of a single shoot of ivy once every 12 hours for four days. When he began it was less than an inch long. Four days later it was almost ten inches long. Measurements were made with a millimeter rule.

At that rate, it would take a shoot of ivy two years and 60 days to grow from the ground up to the top of the Empire State building's new television tower. Mr. Zacks reported the results of his research in the journal, SCIENCE (Sept. 28).

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NUTRITION

## Children Use More Energy Than Adults in Dishwashing

➤ BOYS AND GIRLS spend, on the average, 39% more energy washing and wiping dishes than grown-ups spend at this same job. Boys doing what is considered light carpentry use a little more energy than grown men doing heavy carpentry. And when Sister sews, she uses up 25% more energy than it would take her mother to sew the same button or seam.

Standing at the blackboard drawing or working problems takes an energy expenditure for children of from 76% to 125% more than their basal energy expenditure. The basal energy expenditure is made up of the calories required by the body at complete rest.

Energy expenditure figures, important for calculating how many calories in food must be eaten, are usually reported for grown-ups at rest and at various kinds of activity. The figures for children have been worked out by scientists at the Nutrition Laboratory, Teachers College, Columbia University, in collaboration with the U. S. Bureau of Human Nutrition and Home Economics. The various studies are summarized in NUTRITION REVIEWS (Oct.), published by the Nutrition Foundation in New York.

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***DEEP SEA CREATURE—A possibly new species of crinoid is shown here as it was caught in a photograph of a ledge of a newly-discovered cliff in the Gulf of Mexico. Due to fouling of the tripper weight, the camera is presumed to have fired late—almost horizontally; the angle of sea bottom slope is estimated as 45 degrees. The foot-long, branched object in the foreground is the crinoid. The far ridge, with stalked crinoids, is believed to be about 15 feet from the camera.***

MEDICINE

# Earlier Cancer Detection

**Better and quicker detection of cancer expected through new apparatus to be used with Papanicolaou smear test. Device makes cancer cells show themselves.**

➤ EARLIER DETECTION of cancer with consequent saving of lives should be possible in many more cases through a device developed by Drs. Robert C. Mellors and Reuben Silver of Sloan-Kettering Institute for Cancer Research, Memorial Center, New York.

The device is called a microfluorometric scanner for the differential detection of cancer cells. It was developed to be used with the famous Papanicolaou smear test. The Papa test, as it is known for short, takes advantage of the fact that cancers, even very early, small ones, shed cells as trees shed leaves. These exfoliated cancer cells can be found in the secretion or fluids from the organ where the cancer is.

In using the Papa test, the fluid is smeared on a glass slide, stained with appropriate dyes, and examined under the microscope. Trained pathologists can recognize the cancer cells. One drawback to wider use of the Papa test for early detection of cancer is the need for persons with special training in recognizing the cancer cells.

The new device, reported in the journal, SCIENCE (Oct. 5), makes the cancer cells show themselves in a practically automatic way. It is based on the fact that when cells are stained with a basic fluorescent dyestuff, cancer cells combine with more of the dye than normal cells. When longwave ultraviolet light is shone on the stained cells, each cell shines but the cancer cells shine brighter.

The light the cells give off can be measured with a microphotometer. With the aid of an electronic counting circuit, the presence of certain types of cells can be made to register according to the light they are emitting.

Drs. Mellors and Silver hope that their instrument will make easier large scale screening of the population for cancer, particularly cancer of the uterus in early stages when proper treatment brings a high rate of cure.

Cells shed by lung cancers and found in the pleural fluid also show a quantitative difference from normal cells in the amount of the fluorescent dye they combine with and consequently in the amount of light they give off under ultraviolet. Whether the same is true for cancer cells from stomach, intestines and other parts of the body has not yet been determined.

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MARINE BIOLOGY

## Discover Possible New Species of Crinoid in Gulf

➤ A POSSIBLE new species of crinoids, strange creatures somewhat related to starfish, has been discovered in the Gulf of Mexico.

Crinoids usually live rooted in the ooze or mud of the sea bottom, but this foot-high specimen was photographed attached to what appears to be hard rock on the ocean floor. It was found during a survey of the Caribbean area by the Woods Hole Oceanographic Institution's research vessel Atlantis.

The picture disclosing the new crinoid was taken of a ledge of a steep cliff, some 70 miles off the west Florida coast, discovered during the survey. Dr. Austin Clark of the Smithsonian Institution states that the crinoid is possibly "something quite new, as none of the stalked crinoids living attached to rocks by a terminal stem plate have so far been found in the Atlantic basin."

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MEDICINE

## Disease-Causing Viruses Aid Battle Against Cancer

➤ STRANGE DISEASE-causing viruses from Africa and South America are now being used in the battle against cancer.

Almost 100 cancer patients at Memorial Hospital in New York City have been given this virus-against-cancer treatment during the past two years.

The treatment has not yet produced any cures. In fact, the doctors there "don't think we have ever done any patients any good," one of them said. But they keep on trying in the hope of hitting a virus that will do the job of killing cancer cells without harming normal cells.

This approach, selective killing of cancer cells, offers the best solution to the cancer problem, Dr. Geoffrey Hadfield, professor of pathology at the Royal College of Surgeons, London, declared at the meeting

of the Medical Society of the District of Columbia. He believes that scientists "are in sight of success in this direction."

The idea of using viruses to stop cancer is not new. For more than half a century doctors have reported occasional cases of a cancer patient improving remarkably when he had gotten some germ-caused disease.

Development of sulfa drugs, penicillin and other antibiotics which stop so many disease germs has led scientists at the University of California to try deliberately infecting cancer patients with a disease that can be cured in the hope it will stop the cancer. A few dramatic improvements have been reported, but they were only temporary.

At Memorial Hospital scientists found a number of viruses which would destroy cancer in mice and fowl without harming the animals. Some of these viruses do not, so far as is known, cause serious disease in man. It is these viruses which have been given trials on patients. Although the patients have not been helped except perhaps temporarily, the scientists have been encouraged because they occasionally find the virus in the cancer. This means that they are getting a virus which will select cancer cells to grow on in preference to other cells in the body.

Right now they are working first, to get human cancers to grow in an animal, such as a mouse. Then they are trying to get a cancer-killing but otherwise harmless virus to adapt itself to select these human cancer cells for its home.

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Wild mourning *doves*, trapped by wildlife officials, were dipped in brilliant aniline dye solutions before release so that hunters this fall will note and report leg bands, an aid in a study of their journeying.

There are 800 different kinds of *earthworms* in the world.

METEOROLOGY

# Snow Prediction Method

➤ SUDDEN, HEAVY snowstorms—the kind that paralyze cities—will be predicted with a greater degree of accuracy and sooner this winter as the result of research done in the Weather Bureau's regional office in Washington.

Last winter the research paid off in predicting the great Ohio snowstorm. It might have helped to give a better prediction of New York's blizzard in 1947.

The heavy snows in Cleveland amounting to 22 inches were predicted because the weather pattern before the storm was remarkably like the weather pattern just before Cleveland's great snowstorm of November, 1913, when an all-time high of 22.2 inches fell. The weather maps for Nov. 8, 1913, might almost have been used to analyze the weather on Nov. 24, 1950.

Most sudden, heavy snowstorms are hard to predict. They do not cast their shadow before them, at least on the weather maps. It is for this reason that Conrad P. Mook, the Weather Bureau's research man for a ten-state region in the East, has tackled the problem.

He has gone over the records of almost 500 heavy snowstorms for the first 40 years of this century in the ten-state area. And he has noticed this remarkable similarity in weather patterns time and again. This coming winter, when he sees weather patterns which look as though they happened before prior to a storm, the forecasters will be alerted.

As a further help in forecasting storms, Mr. Mook has worked out the probability of one city getting heavy snow right after another city has received a thick blanket. Where it has worked out in the past that the same storm has hit two cities, forecasters will be alerted.

Next problem to be worked out is what causes these weather patterns which precede storms. Mr. Mook will search through all the variables which go to make up a weather pattern. He will try to discover what combination of speed of winds at various heights, temperature and moisture in the air would signify heavy snow.

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**Photographs:** Cover, Illinois Natural History Survey; p. 227, David Owen; p. 229, Salvador Gordoa A.; p. 231, U. S. Air Force; p. 234, U. S. Bureau of Mines.

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ASTRONOMY

# Observatory Named

**Best private astronomical observatory in Latin America named for Leon Campbell who headed the American Association of Variable Star Observers for 30 years.**

➤ THE BEST private astronomical observatory in Latin America now bears the name of an American who never visited Mexico yet whose leadership in variable star observing won appreciation throughout the world.

The new Leon Campbell Observatory is the creation and joy of a leading automobile distributor of Puebla, Sr. Domingo Taboada, whose jolly bearded countenance is seen at the professional and amateur astronomical meetings of Mexico.

Leon Campbell was executive head of the American Association of Variable Star Observers for 30 years. He died last May. From Harvard Observatory in Cambridge, Mass., he sent to scores of amateurs, young and old, instructions as to which of the thousands of fluctuating stars in the heavens needed watching.

One of these volunteer observers was Sr. Taboada who began by building his own simple telescope of the sort that is effective for variable star observing. Campbell recognized him as competent and enthusiastic and there arose a correspondence of scientific friendliness.

Sr. Taboada became as interested in the heavens and telescopes and clocks that look to the stars for their time as he was in the thousands of automobiles and trucks that he sold.

His offices and shops, not far from the center of one of the oldest of Mexican cities, became more and more of an observatory and a museum.

With Campbell's guidance he bought a modern six-inch refracting (lens) telescope from Warner and Swasey, Cleveland, who have made many of the world's big telescopes. He paired with it a 12-inch reflecting (mirror) telescope with photographic attachment. These are suitable for spectra work and photographing comets, novae or new, exploding stars and other objects. Any university would be proud to have such instruments in their special domes and accompanying laboratories and shops.

When Dr. Harlow Shapley, director of Harvard College Observatory, came to Mexico to receive an honorary degree upon the occasion of the 400th anniversary of the National University of Mexico, Sr. Taboada invited him to unveil the name plate of the new Campbell Observatory. Among those at the dedication were the Mayor of Puebla, Nicolas Vazquez, and Dr. Guillermo Haro, director of the National Astrophysical Observatory in nearby Tonanzintla and the Mexican National Observatory in Mexico City.

The Tonanzintla Observatory, which was built eight years ago by the state of Puebla and the Mexican government with the help of Dr. Shapley and his colleagues, has one of the largest and most effective Schmidt photographic telescopes upon which significant discoveries are being made by a staff of professional astronomers who have been trained in both Mexico and the United States.

Sr. Taboada's new observatory has in several cases cooperated in detailed photographing of new discoveries, such as the Haro comet of a few months ago.

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*CAMPBELL OBSERVATORY—Inspecting its 6-inch refractor at the dedication of observatory at Puebla, Mexico, are (left to right) Domingo Taboada, Dr. Harlow Shapley and Mayor Nicolas Vazquez.*

RADIO

## Weather Changes Radar Range Near Lake's Surface

➤ RADAR RANGE for ship-borne equipment on vessels on the Great Lakes becomes from 10 to 15 times greater than normal under special atmospheric conditions, studies made by the Canadian Research Council show. These special conditions occur largely in summer.

The studies were made on Lake Ontario. The special conditions that increase radar range are quite common on fine summer days. These occur when a layer of air from 50 to 200 feet thick is formed next to the water. The layer traps much of the energy radiated from the radar and guides it along the surface of the water, far beyond the optical horizon.

The trapping of radar waves in these surface layers creates several practical problems. Important among these is the danger that mariners on the lakes may come to think of the spendid radar ranges in fine weather as normal and thus get into difficulties in bad weather. There is also a danger that ship-borne radar antennas may be mounted too high to take full advantage of the remarkable propagation within the surface ducts.

In studies now being made, a typical marine radar is mounted in a cage which travels slowly up and down a cable from the top of a Lake Ontario bluff to the water level. A photograph of the radar screen is taken automatically every 30 seconds. This gives a record of radar performances under prevailing weather conditions for all radar heights from ten feet above the water to 250 feet above.

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MEDICINE

# Radioactive Gold Helps

➤ INJECTIONS of radioactive gold, flown to Iowa City, Ia., from the atomic pile at Oak Ridge, Tenn., have quickly and materially reduced the size of prostate gland tumors in 20 men, Dr. Rubin Flocks of the State University of Iowa college of medicine reported at a sectional meeting of the American Urological Association in Toledo, Ohio.

In some cases the radioactive gold may even have destroyed the cancers, Dr. Flocks said, though he stressed that it is too early to be sure whether the results of treatment will be permanent.

Removal of the cancer by surgery was not practical in the 20 patients treated because it had spread outside the gland to tissue in the immediate area. But because the cancer had not spread to distant parts of the body, there was hope that local irradiation would be effective.

X-rays and radium, used for treatment of cancers for many years, produce harmful effects such as bowel and bladder irritation when used in prostate cancer cases. These complications were not nearly so marked when the radioactive gold was used. Only one of the 20 patients suffered irritation of any consequence, Dr. Flocks reported. The radioactive gold was injected directly into the gland after it had been made accessible by surgery.

One of the drugs used to carry the gold during the treatment breaks down the substances between the cells, permitting better distribution throughout the diseased area. The other constricts blood vessels so the cancer-destroying particles are not lost from the locality of the tumor.

Collaborating with Dr. Flocks in the study are Drs. H. Dabney Kerr, H. B. Elkins, and David Culp of the University's medical school.

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TECHNOLOGY

# Protect Cloth From Dirt

➤ A NEW atomic instrument which eliminates static in weaving has been developed by Dr. P. S. H. Henry, of the Shirley Institute, Manchester, England.

Called RASE, this radioactive static eliminator consists of metal rods or strips containing the element thallium which has been exposed in an atomic reactor or "pile" until it becomes radioactive.

When removed from its protective shield RASE sends out fast-moving beta particles or electrons which collide with and ionize molecules of air. When ionized air comes in contact with statically charged cloth it removes the charge from the cloth.

The removal of static charges from cloth surfaces is especially important in rayon and nylon cloth weaving, as both these synthetic yarns are poor conductors of electricity and readily pick up and hold electrostatic charges when rubbing against the rollers and other parts of the machines on which they are woven.

If this charge is not removed when the cloth is stored for the night, it attracts dust particles from the air, which then cause dirty streaks on the cloth. This electrically bound dirt is almost impossible to remove by washing and results in the loss of many yards of material.

During the day dust attraction is of no consequence, as the cloth is exposed to the air for only a few seconds before it is wound onto a tight roll, but during the night the outer layers of the bolts have ample opportunity to pick up the dust. Consequently RASE is brought into use as soon as the operations stop for the day, the first 15 minutes after shut-down being considered the most critical for discharging, as it takes that long for the cloth to pick up a noticeable amount of dust.

Winter is much worse for static electricity because the heating of the building results in a lower relative humidity, which favors the development and retention of static charges.

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INVENTION

## Ionized Air Device Measures Plane's Speed

➤ THE SPEED of an airplane is measured directly with an instrument based on a new principle, using ionized air reference regions on the wing of the plane. The instrument also indicates the nature of the airflow over the airfoil and the approach or pressure of a stalling condition.

The instrument includes an electric pulse generator for intermittently ionizing, or electrically charging, the air in the airstream to form segments of ionized air in the stream. An electric timer connected with the generator operates in the intervals between the pulses. The timer works in cooperation with sensing elements located downstream which detects the ionized segments.

Inventor is Paul J. Campbell, East Hartford, Conn. His award was patent 2,569,974. Rights are assigned to United Aircraft Corporation, also of East Hartford.

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## On This Week's Cover

➤ A HOUSE FLY being given a measured dose of DDT is shown on the cover of this week's SCIENCE NEWS LETTER. The effectiveness of DDT and other insecticides is being tested on a year-round basis by Illinois Natural History Survey entomologists. They are investigating the resistance of flies to DDT and possibly to other insecticides. One way to test effect of insecticides is to deal out a measured amount to a pest.

PHYSICS

## Atomic Heart Is Even More Complex Than Was Thought

➤ EVEN THE heart of the atom is more complicated than scientists have imagined. Battering the atomic nucleus with some of the world's most powerful concentrations of radiation beams from the Columbia University Nevis cyclotron at Irvington-on-Hudson, N. Y., scientists are gathering facts that will result in better atomic theories.

One atomic particle, known as the negative pi meson, has a lifetime of only 300 millionths of a second, experiments of the past year with meson beams have shown. Mesons are fundamental particles exchanged between the neutrons and the protons within the atomic nucleus. In nature the cosmic rays produce mesons, while only three or four cyclotrons so far completed are powerful enough to produce them artificially.

All theories of how matter is held together are very complicated. Prof. James Rainwater, director of the Nevis cyclotron, predicts that a simple relationship will be discovered in the future.

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GENETICS

## Find Rabbits Inherit Efficiency as Mamas

➤ WHETHER MRS. Bunny Rabbit will be an efficient mother is partly determined by inheritance, Dr. Paul Swain and Robert Curran of the Jackson Laboratory in Bar Harbor, Me., have discovered.

Rabbits, these scientists find, are not as much alike in respect to reproduction and motherhood as peas in a pod. They vary in six respects: fertility, fecundity, milk production, maternal instincts, growth rate of young and number of newborn surviving.

The scientists have studied over several years five races of rabbits inbred for 15 to 22 generations. A pituitary deficiency will result in mediocre fertility, they reported to the Genetics Society.

Some rabbit mothers build poorer nests than others, some are deficient in their interest in protecting their young, some have poor milk supply and others have delayed lactation which may contribute to high juvenile mortality.

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MEDICINE

# Krebiozen Merit Argued

**One man presents seemingly contrary views concerning the Krebiozen treatment for cancer. Called incapable of checking cancer but deserving of further trials.**

➤ KREBIOZEN, hailed last March as a promising treatment for cancer, is now called incapable of checking cancer and at the same time said to deserve further trial in human patients.

These seemingly contradictory views are given, all in one statement, by one man, the distinguished scientist who last March sponsored announcement of Krebiozen. This scientist is Dr. A. C. Ivy, head of the department of clinical science of the University of Illinois at Chicago.

Because of the interest in scientific and lay circles in Krebiozen, the editorial board of SCIENCE, official journal of the American Association for the Advancement of Science, requested an opinion on it from Dr. C. P. Rhoads, director of Memorial Center for Cancer and Allied Diseases, New York, and a recognized authority on cancer. Summing up a detailed and completely adverse criticism of Krebiozen, Dr. Rhoads states in the Sept. 28 issue:

"From the evidence presented concerning Krebiozen, it is not possible to conclude that it is capable of exerting a salutary effect on the course of neoplastic disease (cancer) in man."

"I agree with everything Dr. Rhoads states in his communication," states Dr. Ivy in his reply, thus seeming to agree that Krebiozen is worthless.

Then he goes on to say that he holds the same conviction he did last March, "namely, that the substance merits further careful clinical investigation."

"The fact that Krebiozen has been distributed for clinical investigation free of charge constitutes," states Dr. Ivy, "unequivocal evidence of conviction that it may prove to be of value."

Krebiozen is described as a white powder prepared from the serum of a horse after treatment. The kind of treatment and the method of preparing the powder have not been divulged. Krebiozen was discovered by Dr. Stevan Durovic who, Dr. Ivy says, produced Krebiozen in Buenos Aires in the pharmaceutical concern owned by his brother.

Lack of controls, lack of uniformity of patients as to age, sex and stage of cancer, and irregularity of results are among the points in Dr. Rhoads' criticism of the report of 22 patients treated. Eight of these patients are dead. The good effects reported in others, he points out, "were not established as due to the treatment employed."

The reports of patients that they feel better and have less pain are quite commonly met in patients getting almost any new treatment. These reports are considered as being only psychological in origin.

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PHYSICS

## "KKK" Robe, Light Skin Help Foil A-Bomb Heat

➤ A LIGHT skin and a Ku-Klux-Klan-like robe will be a help in case an atomic bomb falls.

This is the conclusion of Dr. Konrad J. K. Buettner, a German scientist now doing research for the U. S. Air Force School of Aviation Medicine in San Antonio, Texas.

Black skin, he found, reflects only 10% of the heat rays to which a man or woman might be exposed by an A-bomb, while white skin reflects 40%. Nearly the full force of the bomb's heat radiation is absorbed by a dark-skinned person, heating the surface layers of the body to a fantastic temperature. The difference in the amount of heat radiation can be a critical factor in survival.

The answer, according to Dr. Buettner, is not to expose the skin. He has found that a hooded suit resembling a Klansman's robe and covered with aluminum foil is the best available shield against intense heat. The scientist wants civil defense authorities to develop such a garment on a glass-fabric base for use by civilians.

Dr. Buettner created the intense heat needed for his experiments with a powerful sun reflector, which focused the sun's rays on a point. He used cuts of pork from black and white pigs in his experiments.

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VETERINARY MEDICINE

## Dogs, Cats and Cattle Benefit by Earth Remedy

➤ DOGS, CATS and cattle as well as humans are benefitting from one of the newer antibiotic, or so-called mold remedies, terramycin. The drug, from an organism that comes from the earth, saved all but one of 120 cattle sick with shipping fever and pneumonia, Drs. C. W. Cromley and J. M. Hagely, Ashville, O., veterinarians, report in VETERINARY MEDICINE.

Science News Letter, October 13, 1951

***CONCENTRATED HEAT—Heat as intense as that of an atom bomb is concentrated on this piece of wood, held up to the focal point of a powerful sun reflector by Dr. Konrad J. K. Buettner of the U. S. Air Force School of Aviation Medicine in San Antonio, Texas. Dr. Buettner converted an old searchlight for his heat experiments. The wood bursts instantaneously into white-hot flame, as it would if an atomic bomb exploded nearby.***

BIOLOGY

## Beef Cattle for Year-Round Use in Hot Areas Sought

➤ THE BEST breed of beef cattle for year-round use in hot areas is being sought through tests at the University of California's Imperial Valley Field Station at El Centro. It may be necessary to develop a new strain of cattle.

Collecting data on established breeds is the initial phase of the project. A small herd of Brown Swiss, a type known to stand heat reasonably well, is now under test for adaptability to the region.

Milk records are being taken on part of the herd to compare production with that made under favorable climatic conditions. Other young cows in the herd are being used as foster mothers for raising veal calves.

"If the milk production proves sufficient to justify a calf-raising program, the income from one animal may be greatly increased," said Prof. Harold Guilbert, in charge of the investigation. "It may be possible to rear 6 to 10 calves to veal stage on a single mother."

Year round production of beef cattle is relatively new in the Imperial Valley. Large operators generally bring their cattle into the Valley during the fall and market them in the spring while the climate is still favorable. With the rapid expansion of irrigated pastures—particularly on marginal land—a few of the smaller producers have been maintaining herds throughout the year and doing some breeding.

Science News Letter, October 13, 1951

PUBLIC HEALTH

## Two-Point Program For Fighting Colds

➤ AS THE season for colds opens, you might consider a two-point personal program for handling these annoying and sometimes dangerous afflictions.

Point One: Take care of yourself and your cold. If the cold is really severe, particularly if you have fever with it, better see your physician. The illness may be something more serious than a cold. You may be developing pneumonia. This disease is not the menace it once was, thanks to sulfa drugs, penicillin and other antibiotics. But it is always serious, and the sooner treatment is started, the better.

Rest is still the best treatment doctors can advise for a cold, grippe, 'flu or similar ailment. There are various drugs, such as nose drops and sprays, cough medicines, and the much-advertised anti-histamines, some of which may make you more comfortable while you have a cold. If you are going to take any of these, by all means consult your physician first. Let him tell you what to take and how much. The remedy that is safe and helpful for one person may not be for another. Your doctor is the best person to tell you what is good for you.

Point Two in your personal cold program: Keep your cold to yourself. As you know, colds come from a virus which is breathed, sneezed, and coughed into the air by the cold victim. If you can avoid giving your cold to someone else, you will not only be doing the other fellow a good deed. You may even be saving yourself another cold by interrupting the chain of infection that travels from one person to another and sooner or later back to you.

Science News Letter, October 13, 1951

PSYCHOLOGY

## Change Self View to Meet Opinion of Others

➤ YOU DO try to see yourself as others see you. Research at Emory University in Atlanta, Ga., indicates that people tend to adjust their own pictures of themselves to fit the opinions of others.

Graduate student James Patterson Daniel first asked his subjects to "rate" themselves as to whether they were "secure," "neutral," or "insecure."

After rating themselves the students took a test designed to show objectively whether they were "secure," "neutral," or "insecure."

Then Mr. Daniel returned the papers some days later, explaining to those who had rated themselves as "insecure" that the test showed them to be as secure as the average. He asked them to rate themselves a second time, and take another test. Those who had thought themselves "neutral" or "secure" were told they were mistaken.

On the second self ratings about half of the "secure" obligingly shifted their opinions of themselves; two-thirds of the "neutral" changed; and nearly all of the "insecure." However, the changes in scores on the objective test were negligible, showing them to be unchanged in spite of their opinions of themselves.

Science News Letter, October 13, 1951

INVENTION

## Aluminum on Iron Forms Flake-Resistant Coating

➤ MOLTEN ALUMINUM applied by the hot-dip process to objects of iron will form a coating highly resistant to flaking or peeling by a discovery that brought Daniel O. Gittings, Pittsburgh, Pa., patent 2,565,768. Rights are assigned to the United States Steel Company.

His discovery is that a high-quality aluminum coating will result if a very small amount of beryllium is added to the aluminum coating bath. The amount of beryllium may vary from less than one-tenth of one percent up to two percent. In the finished article there is a thin, relatively soft beryllium-containing iron-aluminum alloy layer between the iron object and the outer aluminum coat that prevents the coating from cracking even under severe bending tests.

Science News Letter, October 13, 1951

# IN SCIENCE

ASTRONOMY

## Radio Stars Constant— In Heavens, That Is

➤ THE STARS visible to the eye are in many cases not constant but variable, but the radio stars are remarkably constant.

These radio stars are actual bodies in the heavens that emit radio waves which create noise in very sensitive radio receivers.

One of the great discoveries of recent years has been these radio stars, of which over a hundred are known, most of them at points in the heavens from which no visible or photographic light comes.

At the University of Cambridge's Cavendish Laboratory, Drs. M. Ryle and B. Elsmore have followed radio stars for long periods of time, receiving their output of 3.7 meters wavelength with special aerials.

Over 18 months of observation the variation of signal intensity from these stars was not greater than 10% and for the most intense ones probably was less than 5%. This means that the radio stars do not vary by more than a tenth magnitude, in terms the astronomer uses, with any period shorter than a thousand days.

Science News Letter, October 13, 1951

GENERAL SCIENCE

## Alcoholics Anonymous Gets 1951 Lasker Award

➤ ALCOHOLICS ANONYMOUS, which in 16 years of existence has brought recovery to 120,000 chronic drinkers, will receive one of the 1951 Lasker Awards at the meeting of the American Public Health Association in San Francisco on Oct. 30.

The Health Insurance Plan of Greater New York will receive the other of the two awards made to institutional groups.

Individual awards of $1,000 and a gold statuette of the Winged Victory of Samothrace will be given to the following: Dr. Florence R. Sabin of Denver for her leadership in rejuvenating her state's public health services; Dr. Elise L'Esperance of New York and Dr. Catherine MacFarlane of Philadelphia, a joint award for their role in establishing cancer detection clinics; Dr. Karl F. Meyer of San Francisco, bacteriologist whose work has made possible control of various kinds of food poisoning and the development of modern food technology; and Dr. William G. Lennox of Boston and Dr. Frederic A. Gibbs of Chicago, jointly, for rescuing hosts of epilepsy sufferers from their misery.

Science News Letter, October 13, 1951

# ENCE FIELDS

TECHNOLOGY

## Silicone Resins Make Masonry Water-Repellent

➤ SILICONE RESINS are the basis for a high-quality water repellent surface treatment for exterior and above-ground brick and masonry. A new silicone resin developed by Dow Corning Corporation in Midland, Mich., is particularly suitable because it develops a very high order of water repellency, and does so within 24 hours of application.

Finishes made with this resin are easy to apply with brush or spray. They have little effect on the color or texture of a wide variety of masonry surfaces. They penetrate deeply into the surface, combining chemically to some extent with the masonry itself.

They do not plug pores but form a lining within them that repels water trying to enter. The resin is highly resistant to oxidation and to ultraviolet light. The service life of finishes using the silicone resins is not known but laboratory tests indicate that it may be about ten years.

Dow Corning does not manufacture water-repellents for masonry. It makes the silicone resins which manufacturers of water-repellents can use. Finishes made with these resins are not intended to cure leaks in masonry due to faulty construction or cracking. Holes and cracks opened by settling or aging must be filled with mortar before the silicone resin finish is applied.

Science News Letter, October 13, 1951

MEDICINE

## Swab Throat to Block Polio When Tonsils Cut

➤ SOME CASES of poliomyelitis might be prevented by swabbing the throat with two percent tincture of iodine, it appears from experiments by scientists at Standford University School of Medicine in San Francisco.

The method would only be useful in cases of persons needing to have their tonsils removed at a time when they might have been exposed to the polio virus and have the virus in their throats. The swabbing with iodine would be done by the surgeon just before removal of the tonsils.

Another if: The antiseptic would be effective only if it worked as well in humans as in the six monkeys in the Stanford studies.

This suggestion of a polio preventive under certain conditions turned up in studies showing that the chances of the serious bulbar type of polio developing are much greater when tonsils have been removed within a month or less of onset of poliomyelitis. Statistical studies of human cases have indicated this, but the Stanford studies are the first monkey studies showing that this is the case.

The stress of the operation itself, the monkey experiments also showed, may make the attack of polio more severe in the rare cases where the operation is performed after the disease has already started.

These experiments may strengthen advice doctors have been giving for several years to avoid tonsil operations during the polio season. They are reported by Drs. Harold K. Faber, Robert C. McNaught, Rosalie J. Silverberg and Luther Dong in the PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE (July).

Science News Letter, October 13, 1951

PUBLIC HEALTH

## Consider Safety in Clothes for Children

➤ PRICE, STYLISHNESS and wearing quality are items generally considered by most mothers when outfitting their children.

They should think also of safety in connection with a child's clothes, urges Clarice Scott, clothing specialist of the U. S. Department of Agriculture. And the fit of a child's clothes is important, too.

Clothes that fit, Miss Scott says, look better, wear longer, are safer and more comfortable than those too big or too small.

An oversize playsuit or snowsuit, for example, is awkward and uncomfortable, may catch on anything in the way and jerk a running child to a dangerous stop. Straps that continually slip off the shoulders may restrict a child's arms just when he needs to make a rapid reach to save a fall. Too long trousers dragging over shoes are stumble hazards.

Check children's shoes often to be sure they fit and are in good repair, Miss Scott urges. "Trip" hazards include shoe straps that come unfastened, missing buckles, untied strings, flapping soles. A double tie makes shoe strings secure. As for the slippery soles of new shoes, especially hazardous to the toddler just learning to walk, rub them with light sandpaper to rough them up for safety.

Play clothes probably need first attention for safety, but even best clothes can be hazardous, Miss Scott says, citing sashes on dresses that easily come untied and drag, and party shoes with buckles on the side that may catch and cause an accident.

The cowboy outfits, so popular with the youngest generation, need safety consideration, too. If they include fuzzy "chaps", be sure the fabric is nonflammable. High-heel hazards often have been pointed out to women, but how about those tall-heeled boots on which many young cowboys are teetering? Such heels are designed for stirrups, not for the lad on foot.

Science News Letter, October 13, 1951

ENTOMOLOGY

## Ladybirds Dine on "Hot" Aphids, Become Radioactive

*"Ladybird, Ladybird, fly away home!*
*The aphids are 'hot,' so leave them alone."*

➤ THE OLD nursery rhyme might be revised this way as a warning to the bright little beetles that aphids on melons at the University of California's Citrus Experiment Station at Riverside are "hot" with radioactivity.

Some aphid-hungry ladybirds have already gotten into trouble and turned up radioactive after a feast on "hot" aphids.

In tests on control of the citrus area's costly quick decline virus disease, Dr. Robert C. Dickson, assistant entomologist in the station's division of entomology, set out to check on dispersal flights of the virus-carrying melon aphid. His objective is to see if aphid control by insecticides can be used as a check on spread of quick decline.

By feeding radioactive phosphorus to melon plants, he was able to mark colonies of aphids feeding on the plants. They could be identified by a Geiger counter wherever they flew.

Sticky traps were hung around a selected and fenced citrus orchard, and the potted, aphid-covered melon plants were set in the center. Then the experiment struck a snag, said Dr. Dickson. Few radioactive aphids showed up in the traps.

But some ladybirds did. The sputtering Geiger counter told the entomologist what had happened. Aphids and the radioactive phosphorus were inside a flock of hungry ladybirds. The more aphids eaten, the hotter the ladybirds tested.

Ladybird control will precede the next aphid flight check.

Science News Letter, October 13, 1951

INVENTION

## Cut Short Time Needed to Coat Nickel with Mercury

➤ THE VERY long time required in the past to coat nickel with mercury, important in the electrical industry, is cut to a very short time with a method which brought Theodore M. Burkholder, Newton, Mass., patent 2,567,762 with rights assigned to Raytheon Manufacturing Company of the same city.

In the process, the nickel to be coated is immersed first in a solution of one part water and seven parts nitric acid for one to two minutes. After washing, it is first immersed in concentrated hydrochloric acid for up to 30 seconds, then stuck into a bath of mercury which has dilute hydrochloric acid floating on top. It is agitated in the acid for about ten seconds, then dipped into the mercury for another period of the same length. By this process it has acquired a coating of mercury.

Science News Letter, October 13, 1951

ENGINEERING

# Mining Without Miners

**Underground workers not required in relatively new method of getting energy from coal by burning it in its natural seams.**

By A. C. MONAHAN

➤ THE ENERGY in deep underground coal seams, too thin to be mined by ordinary methods, is being captured and put to work by an underground burning process in Russia, Great Britain and the United States.

Crude petroleum was experimentally obtained in Sweden from deeply buried deposits of oil shale by applying electrical heat to the shale, the heat being applied in deep bore holes drilled down from the surface.

Most salt obtained from deep in the crust of the earth in America is captured and brought to the surface by high-pressure water forced down one pipe which comes back through another laden with the mineral. In many parts of the world, salt is mined by pick-and-shovel workers who work deep under the earth.

Sulfur in the natural deposits in Louisiana and Texas is brought to the surface melted in hot water which has been pumped down to it through a pipe. Super-heated steam is used. It has a temperature above 240 degrees Fahrenheit which is approximately the melting point of sulfur.

The light metal magnesium, now coming into wide use particularly in the aviation industry, can be recovered from seawater but much is obtained from underground salt beds by the water method, the magnesium salts being removed from the brine. Much iodine is now recovered from brine brought to the surface in oil fields.

## No Underground Workers

These are all examples of mining without miners. At least, they do not employ underground workers. They do employ highly trained technical men and mechanics but these employees remain on the surface. In this they are like the employees of the oil industry. In ordinary language, oil is mined, but the operators are not miners in the usual sense of the word.

The process of burning coal underground in its natural seams to obtain combustible gases was first tried in Russia, it is claimed. Considerable work has been done in England with special emphasis being placed on it in the past few years. America's first "pilot-plant" attempt began about four years ago at Gorgas, Ala., in cooperation with the Alabama Power Company.

The experimental work is continuing—and at a stepped-up pace. By January 1951, about 8,000 tons of coal underlying between one and two acres of ground had been burned from a single initial passage prepared at the start of the work. It has been definitely proved that low-cost fuel for generating electric power can be obtained. A gas turbine engine driven by hot product gas was successfully run. In one section, operated for 16 months, the total heat of the gas reached a maximum for the eighth month of about 70% of the heating value of the coal consumed.

In the process of burning coal deep under the surface of the earth, at least two holes are sunk into the coal layer, and fire started in one. Gases of combustion pass through the coal to another hole and rise through it to the surface where they are captured in containers.

The actual process, however, is more complicated than that. Air or oxygen must be forced under pressure down the ignition hole to enable combustion to continue. The amount must be regulated. If too much oxygen is supplied to the fire a complete combustion takes place. Hot gases are obtained that might be used for heating but they would not be combustible. Burning the combustible gases from the coal is what provides the desired power.

Again, the process is complicated by the need of a man-made opening through the coal seam from the burning part to the gas-collecting pipe. The opening is a tiny tunnel bored from the bottom of a shaft extending down into the coal. The shaft must be large enough for a man to work in at its lower end.

What may well prove to be a more efficient and less expensive way of making a passage in the coal for aiding the combustion and permitting the gases of combustion to pass to the recovery hole received a recent patent from the U. S. Government. The inventor is Frederick Squires, Illinois State Geological Survey, Urbana, Ill., and in his process the clay under the coal is removed by water.

The process is quite simple. A hole is drilled through the coal seam into the underlying clay. A pipe is placed down the center of the hole and water under pressure forced down it. The water picks up the clay under the coal and returns to the surface bearing the clay with it. When enough clay has been removed, the formation is given time to dry. Then ignition of the coal is started. The fire burns along the exposed under side of the coal and the gases of combustion pass along the excavation to the outlet well.

Another method of gasifying coal under ground, developed by the Missouri School of Mines, uses high-voltage electricity. This

*COMBUSTION'S START—An incendiary bomb, called a thermite grenade, is being tossed down a borehole to start combustion by U. S. Bureau of Mines' men in the second coal-gasification experiment at Gorgas, Ala.*

is employed to heat the coal and produce gases in its early stages. After the coal has become sufficiently heated, the electric current is cut and air or oxygen pumped into the coal to cause combustion and the yield of additional gas.

In this process holes are drilled into the coal seams about 20 to 40 feet apart and pipes are inserted in the holes. These pipes act as electrodes. An electric current of considerable voltage is sent from one to another. The electricity has to pass through the coal itself, and much of it is turned into heat by the electrical resistance of the coal. The gases driven off from the coal come to the surface through the pipes that act as electrodes.

### Method for Thin Seams

To some it may seem wasteful to burn coal under ground to obtain gases. But it must be remembered that the process at present is proposed only for seams too thin to be mined by ordinary methods. Miners will work in seams only some 30 inches thick but only with great difficulty in others of less thickness. These thin seams are plentiful in America, Great Britain, Russia and other parts of the world. Many of them are within a few hundred feet of the surface, a depth at which the burning method can be easily employed.

Again, it must be remembered that much of the artificial gas now used in great areas of the United States to which natural gas is not delivered is made from coal. Two types are used, often a mixture of the two. The first is water gas, made by reacting steam over coke. The second is coal gas made by distilling bituminous coal in a retort.

When the coal is heated in a closed retort, gases are driven off leaving coke and coal tar. The gases contain principally hydrogen, methane and carbon monoxide. Those obtained by burning coal underground are much the same. Any coke that may be formed remains, of course, in the earth. Instead of burning the gases produced in a furnace to develop power, they could be used to make synthetic liquid fuels such as gasoline and heating oil.

### Electric Heat Tried

The Swedish experiment in getting petroleum vapor from underground oil shale by electric heat has been temporarily halted because the hydroelectric power available right after World War II is now needed for other purposes. In the immediate post-war years it was surplus and therefore inexpensive. Sweden's present industrial activities require all the electricity available.

Oil companies in Sweden are now said to be considering making their own electricity for the purpose. They would use for fuel the so-called spent shale, from which the primary crude oil had been extracted. This spent shale still has good fuel qualities.

In the work in Sweden, holes were drilled deep into the earth and into the underlying oil shale. Electric heating elements were lowered into the holes and the electric current turned on. It took weeks before the shale was sufficiently heated to give off vaporized crude oil. But the product finally came up the drill holes to the surface where it was captured and refined.

The process of obtaining crude oil from oil shale is one of heating. Basically it means heating the crushed shale in a retort until the oil is driven off. It is doubtful that the Swedish system of heating the shale in place will be used in America. One reason is that cheap electricity is not available. Another is that very much of America's oil shale is in Colorado mountains and can be mined by driving tunnels into the sides of the mountains.

This means that machine mining is easily carried out and the mined shale does not have to be drawn up to the surface through a shaft. In the shale mine in Colorado, trucks enter the mine and load up at the working faces. They carry their loads direct to the pilot plant.

Science News Letter, October 13, 1951


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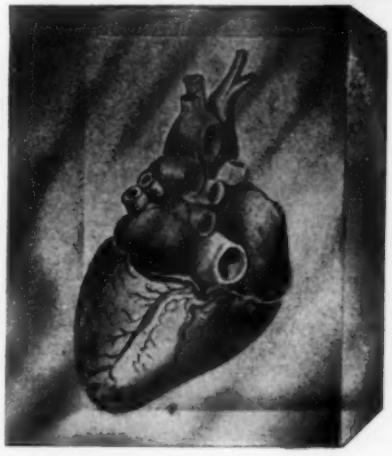

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MEDICINE

## Cat Scratches Cause Illness in Washington

➤ CAT SCRATCH disease has made its appearance on the Washington scene. No cure is known and the victims may have a fever and be sick for weeks or months, but the prospects for recovery are good.

The four-legged variety of cat is responsible, at least in the 12 cases reported by two physicians, Drs. Worth B. Daniels and Frank G. MacMurray of Washington.

In typical cases, the glands in the region of the cat scratch swell, sometimes have pus in them. In some cases there is no known contact with a cat and no sign of a scratch. Depending on where the swollen glands occur, the disease may seem like tuberculosis, Hodgkin's disease, rabbit fever or other ailments. The diagnosis can be proved by a specific skin test.

Science News Letter, October 13, 1951


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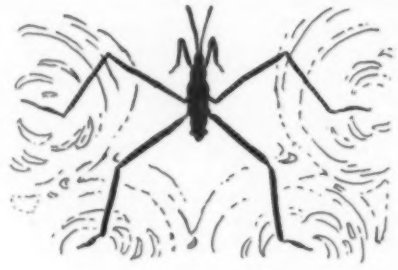
ENTOMOLOGY

## NATURE RAMBLINGS



**Water Strider**

➤ FROSTS CLEAR the land of insects first. As autumn creeps toward winter, the sound of insect cries dies out long before all the insects are dead or forced into hibernation, because the water dwellers, though still active, are for the most part voiceless.

Insects survive longer on the water because water is a heat reservoir, and as the year cools off its temperature fall lags behind that of the land, just as in the spring it warms up more slowly than the land does.

Conspicuous among the insects which you may still see skimming about on the surface of pools and quiet streams is the water strider. It is sometimes miscalled "water spider," presumably because of its long, slender legs and its swift, aggressive movements. But it is a real insect—a true bug, to be exact—and not a spider at all.

It does resemble the spider in one important respect, however. It is an insect of prey, a veritable little corsair of the lesser waters, its sharp, piercing beak forever thirsting for the gore of other insects. This predatory habit is accountable for its paradoxical appearance of having only four legs instead of the orthodox six of most insects. The two forward legs have been shortened and strengthened into little arms, which are usually held closely parallel to the creature's body, and are used in capturing prey and gripping it while the strider eats.

The water strider does not swim; it does exactly what its name implies, and runs along the surface of the water. If you will look at each one of its four legs, you will see that the tip rests in a little depression in the surface film of the water, exactly as a dry needle can be laid on top of water, as though the surface were a thin rubber sheet.

It is thus able to rush about swiftly and with very little effort, making almost no ripples that might betray its presence. So much at home on this unstable foundation is the water strider that it can jump from the surface as a grasshopper does from the ground, alighting again as though on a mattress.

There are marine water-striders as well as fresh-water forms. The most common of these salt-water pirates swarms in the drifting seaweed of the Sargasso sea, and is borne to our shores occasionally when storms break up parts of the floating mass.

Science News Letter, October 13, 1951

MEDICINE

## Lipreading Is Still Important for Deafened

➤ LIPREADING is important for hard-of-hearing people, in spite of the real help many of them are getting from modern hearing aids, declares Miss Ena G. Macnutt, hearing counselor for the Public Schools of Newton, Mass.

In a special report to HEARING NEWS (Sept.), publication of the American Hearing Society, she says lipreading should be studied by "everyone who has sufficient hearing loss to be aware of it and even some who are not aware themselves, though their friends and associates may be."

The person with beginning hearing loss, who still hears too much to stand the amplification of a hearing aid, will not lose out in conversation if he can read lips. He will also seem to hear much better because lipreading will tone up his attention and concentration.

The person with more hearing loss but who hears almost normally with a hearing aid will find lipreading helpful when the batteries give out at a crucial moment, or when the aid must be removed as at the hairdresser's or barber's.

For those who have nerve deafness and hear plenty of sound with their hearing aids but often fail to understand what is said, lipreading is "indispensable," Miss Macnutt states. Auditory training will help them make the best use of the hearing they have but they will need lipreading also.

Some persons have no hearing in one ear but normal hearing in the other. Lipreading is advised for these because of the chance that the hearing of the other ear may also be lost.

Finally, Miss Macnutt points out, for the person who is truly deaf, not just hard of hearing, "lipreading is the one light on the horizon."

Science News Letter, October 13, 1951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ADDITIONAL FORMS OF BIRDS FROM COLOMBIA AND PANAMA—Alexander Wetmore—*Smithsonian*, 11 p., paper, 10 cents.

ADVENTURES OF A NURSE'S AIDE—Enid Day—*Woman's Press*, 116 p., illus., $2.50. A radio personality writes gaily of her experiences as a night volunteer.

ADVENTURES WITH REPTILES: The Story of Ross Allen—C. J. Hylander—*Messner*, 174 p., illus., $2.75. Snakes were a hobby for Ross Allen, but he turned professional and now operates the Reptile Institute in Silver Springs, Fla.

THE BAY—Gilbert C. Klingel—*Dodd, Mead*, 278 p., illus., $4.00. A naturalist writes charmingly of the unfamiliar world on, under and over the Chesapeake Bay.

A CITIZEN'S HANDBOOK OF SEXUAL ABNORMALITIES AND THE MENTAL HYGIENE APPROACH TO THEIR PREVENTION: A Report of the Governor's Study Commission on Sex Deviates—Samuel W. Hartwell—*Public Affairs Press*, 70 p., paper, $1.00. The information you need to think wisely about what you and your community can do to solve the sex crime problem.

DESIGN, CONSTRUCTION AND OPERATING PRINCIPLES OF ELECTROMAGNETS FOR ATTRACTING COPPER, ALUMINUM AND OTHER NON-FERROUS METALS—Leonard R. Crow—*Scientific Book Publishing Co.*, 38 p., illus., paper, $1.00; cloth, $1.25. The author has designed a new type of magnet which will attract non-ferrous metals and discusses here the principles behind this development.

THE DUSKY-FOOTED WOOD RAT: A Record of Observations Made on the Hastings Natural History Reservation—Jean M. Linsdale and Lloyd P. Tevis, Jr.—*University of California Press*, 664 p., illus., $7.50. A day-to-day account of the complicated lives of these medium sized rodents, including the length of time they stay in their conspicuous stick houses and their reasons for moving.

EFFECT ON TRUCK CROPS OF DDT APPLIED TO THE FOLIAGE—C. A. Weigel, A. C. Foster and R. H. Carter—*Govt. Printing Office*, USDA Technical Bulletin No. 1034, 20 p., paper, 10 cents. Don't worry, you do not get the insecticide in the edible parts of your vegetables, but it does cause temporary injury or growth stunting to certain kinds of crops.

FEATHERS PREFERRED: A Sportsman's Soliloquy—W. Austin Peters—*Stackpole*, 198 p., illus., $3.75. A hunter's reminiscences and opinions on wildlife preservation.

THE GENERAL SCIENCE HANDBOOK, PART I: Experiments, Demonstrations and Other Activities Suggested for the First Year of General Science—Bureau of Curriculum Development, N. Y. State Education Department—*University of the State of New York*, 197 p., illus., paper, 35 cents. A handbook for teachers showing how grade 7 students can learn of the world about us by actual experiment with simple materials.

HAWAIIAN ANTIQUITIES (MOOLELO HAWAII)—David Malo—*Bernice P. Bishop Museum*, 2d ed., 278 p., illus., $5.00. A new edition of a classic by a Hawaiian scholar, first published in 1903.

INDUSTRIAL HYGIENE—H. H. Schrenk—*Mellon Institute*, 2 p., illus., paper, free upon request to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. Discussing the influence of dietary factors on susceptibility to toxic substances.

THE NEW MILITARY AND NAVAL DICTIONARY—Frank Gaynor, Ed.—*Philosophical Library*, 295 p., $6.00. This alphabetical listing includes technical terms such as Loran and Radiosonde and slang such as "Long Tom," and "Little David."

NOTES ON PERUVIAN FRINGILLIDAE—James Bond—*Academy of Natural Sciences*, 19 p., paper, 55 cents. Describing the Academy's collection of 100 specimens.

OIL, FAT AND SOAP—Benjamin Levitt—*Chemical Publishing Co.*, 230 p., illus., $6.00. For technical and non-technical workers connected with the oil, fat and soap industries.

REPORT OF THE COMMITTEE ON LAND ACQUISITION AND CONTROL OF HIGHWAY ACCESS AND ADJACENT AREAS AND SPECIAL PAPERS—*Highway Research Board*, 78 p., illus., paper, $1.20. Based on recent laws, ordinances and court decisions.

THE WONDERWORLD OF SCIENCE: Book One—Warren Knox, George Stone, Morris Meister and Doris Noble—136 p., illus., $1.36. Book Two—Warren Knox, George Stone, Morris Meister and Doris Noble—168 p., illus., $1.48. Book Three—Warren Knox, George Stone, Morris Meister and Doris Noble—200 p., illus., $1.56. Book Four—Warren Knox, George Stone, Morris Meister and Dorothy Wheatley—232 p., illus., $1.68. Book Five—Warren Knox, George Stone, Morris Meister and Dorothy Wheatley—264 p., illus., $1.80. Book Six—Warren Knox, George Stone, Morris Meister and Dorothy Wheatley—296 p., illus., $1.88. Book Seven—Morris Meister, Ralph E. Keirstead and Lois M. Shoemaker—360 p., illus., $2.08. Book Eight—Morris Meister, Ralph E. Keirstead and Lois M. Shoemaker—360 p., illus., $2.12, *Scribner's*. A series of graded books which are both readers and science books serving to introduce young students to the world about them.

Science News Letter, October 13, 1951

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ASTRONOMY

## Moon Will Spoil Meteor Display This Month

➤ OCTOBER MAY be a good month to show your best girl the moon, but it won't be a favorable time to look for "shooting stars."

Usually one of the best months for spectacular displays of meteor showers, this October the moon has once already spoiled and will continue repeatedly to spoil the heavenly show.

On Oct. 9, the Giacobanid shower, radiating from the head of Draco, the dragon, reached maximum. But the moon's great light made it difficult to find any but the brightest of the "shooting stars."

The meteor shower from Aries should reach maximum about Oct. 15, but by then the moon will be almost full and will be found almost exactly in the center from where these meteors seem to radiate.

The Orionids, usually one of the best showers, reach maximum about Oct. 20. But again the moon will "steal the show," reports the Hayden Planetarium. It will be a bit brighter than last quarter and having moved into the constellation of Gemini, the twins, will be close to the radiating area of the meteors.

Science News Letter, October 13, 1951

SURGERY

## Muscles Switched to Help Many Polio Patients Walk

➤ A MUSCLE-SWITCHING operation to help many polio and other patients with paralyzed hips walk again has been devised by surgeons at Indiana University Medical Center in Indianapolis.

It consists in changing the position of a thigh muscle so that instead of running straight down the front of the thigh, it passes diagonally down and around to the side of the thigh. In this new position it can double for a paralyzed abductor muscle in raising the leg to the side.

Good results in 10 patients during the past year are reported by the Indiana University surgeons.

Science News Letter, October 13, 1951

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PHYSICS

# Detect by Atomic Debris

➤ BECAUSE AN atomic bomb contaminates slightly the air many thousands of miles away, it is possible for U. S. experts to advise President Truman that a second atomic bomb has been exploded in Russia.

The debris of an atomic explosion is very different from other materials in the air naturally. Both the United States and Soviet Russia are presumably running continuous detection devices, analyzing the atmosphere at various heights, in order to get information on any fission products that may appear as evidence that plutonium has been exploded. These detection stations would be spread over the Pacific, Alaska and elsewhere since the prevailing winds of the world carry air from Russia and Siberia conveniently toward the east.

The possibility of this method of detecting is one of the reasons that U. S. atomic explosions have been announced long after they occurred and then with extreme vagueness as to exact times.

If Russia has exploded more than the two bombs, the first one in 1949, they have probably been detected by U. S. experts but not necessarily announced as part of the intended confusion of the Russian intelligence effort.

Science News Letter, October 13, 1951

MEDICINE

# Hormones for Blood Ills

➤ ACTH AND cortisone, hormone chemicals famous for bringing relief in painful, crippling arthritis, are "useful and sometimes vital" medical tools in some diseases of the blood-forming system of the body, Dr. John J. McGraw, Jr., blood specialist of Bryn Mawr, Pa., declared at the meeting of the Medical Society of the District of Columbia in Washington.

They may actually be lifesaving in two kinds of blood disorders, he stated. These are: 1, anemia due to active destruction of the red blood cells in the circulation; 2, a kind of bleeding disease which is something like hereditary hemophilia and which doctors term thrombocytopenic purpura.

"Dramatic results" may also be obtained with ACTH and cortisone in many cases of acute leukemia in children and in a few cases of this cancerous disease in adults, he said. The good results in these cases, however, are invariably followed by a relapse.

Use of the two hormone chemicals in treatment of eye diseases was reported by Dr. Alan C. Woods of the Johns Hopkins Medical School, Baltimore.

ACTH and cortisone, he said, are "of highest value" in treating acute, self-limited inflammations. Allergic reactions of the outer eye and cornea are among the examples he gave of conditions in which the hormone chemicals are useful.

In these eye conditions the chemicals do not affect the cause of the disease but, rather, work on the reaction of the tissues to the cause or irritant. While they may seem to bring a cure, they do not prevent recurrences of the original disorder.

ACTH and cortisone are without effect, Dr. Woods said, in the usual degenerative diseases of the eyes and they should not be uesd in any form of tuberculosis of the eyes.

Science News Letter, October 13, 1951

ENTOMOLOGY

## Mite Forsakes Citrus For Avocado Leaves

➤ A MICROSCOPIC mite that switched its diet from citrus leaves to avocado leaves, is making trouble for fruit growers in the West.

It's the six-spotted mite, long known as a pest of the Pacific coast citrus industry. In the spring of 1950 it began to chew on the leaves of avocado trees.

When hundreds of these hard-to-see pests feed on one leaf, it turns an ugly brown along the midrib and veins and drops from the tree. In some orchards this has caused severe defoliation.

Much more damaging than the well-known avocado brown mite, the six-spotted mite was treated with certain acaricides (similar to insecticides) such as Aramite, Ovottan, Sulphenone and oil spray, with promising results.

Research at the University of California at Los Angeles under the direction of Dr. Walter Ebeling will attempt to discover which acaricide is best to use, how and when to use it.

Science News Letter, October 13, 1951


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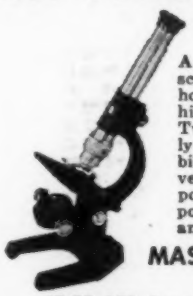

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*WINDOW-VENETIAN blind combination, recently patented, has double glass with an air-tight space between within which the venetian blind is positioned. Mechanism is provided so that the slats of the blind can be tilted as desired without opening the window compartment.*

Science News Letter, October 13, 1951

*NON-COLLAPSIBLE straws for use in drinking are made of a resilient plastic material and, if bent or crushed, spring back into shape. These tough but very light sippers come in several transparent colors and are available in individual sealed wrappers or in 500-straw packages.*

Science News Letter, October 13, 1951

*ANCHORS FOR nails and screws in walls of brick or concrete are plastic plugs which are driven into drill holes in the solid material and the nails or screws inserted in them. The plastic material cold-flows into the crevices of the hole giving good holding power.*

Science News Letter, October 13, 1951

*NON-TARNISHING coating for silverware and articles of brass, gold, copper and other metals, comes as a liquid and is easily applied with a small brush. The film can be peeled off when desired. It safeguards the luster of metal surfaces and resists common tarnishing agencies.*

Science News Letter, October 13, 1951

*SPECIAL HAIR on a doll permits the easy transformation of the doll to a blonde,*

*carrot top or chestnut hue as illustration shows. Harmless food coloring material that can be washed out with warm water in a jiffy does the job. The hair can also be shampooed, brushed and set for different effects.*

Science News Letter, October 13, 1951

*IMPACT RECORDER, small radio-receiver-size device, is placed within a package or mounted in a freight car or truck and notes when a shock or impact occurs, the intensity of the impact and from what direction the jolt came. Its purpose is to find out the best types of packaging.*

Science News Letter, October 13, 1951

*BRUSH CLEANER, to remove spots from clothing, hats or shoes, is at right angles to a handle which is a container to hold a cleaning fluid. Finger pressure on a button releases cleaning fluid through the back of the brush.*

Science News Letter, October 13, 1951

*HYDROLEVEL, for use by construction men in such jobs as setting a level line for a brick layer, is a development of a simple water level. It has a 40-foot hose of transparent material attached to a water reservoir at one end and to a reading gage at the other.*

Science News Letter, October 13, 1951

## *Do You Know?*

A new type of *lawn* grass known as Merion Blue produces a dense turf but does not require mowing as often as older grasses.

Since means have been found for making and handling highly concentrated hydrogen peroxide solutions, this *chemical* has become important in such fields as rocket propulsion.

America's largest *grouse* is the western sage hen.

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